

WHAT IS CLAIMED IS:

1. An apparatus for applying laser radiation to an object, comprising:

a laser light source for generating laser radiation;

a two-dimensional array of influencing elements that can deflect and/or pass the laser radiation issuing from the laser light source in such a way that laser radiation is applied to prescribable locations on the object; and

a two-dimensional array of lens elements that can focus the laser radiation or portions of the laser radiation onto the surface - to which radiation is to be applied - of the object;

wherein the array of lens elements is arranged between the laser light source and the array of influencing elements.

2. The apparatus as claimed in claim 1, wherein the array of influencing elements corresponds to the array of lens elements, in particular to the effect that each influencing element is essentially assigned one lens element.

3. The apparatus as claimed in claim 1, wherein the focal lengths of the lens elements are selected in such a way that the partial beams of the laser radiation that have penetrated the individual lens elements impinge substantially on the influencing elements and not on an interspace, possibly present between the influencing elements, of the array of influencing elements.

4. The apparatus as claimed in claim 1, wherein the lens elements are designed as mutually crossed cylindrical lens elements or elements similar to cylindrical lenses.

5. The apparatus as claimed in claims 1, wherein a homogenization unit for homogenizing the laser radiation is arranged between the laser light source and the array of lens elements.

6. The apparatus as claimed in claim 1, wherein the array of influencing elements is designed as a modulator array with modulator elements.

7. The apparatus as claimed in claim 6, wherein the modulator elements are designed as electrooptic modulators or acoustooptic modulators.

8. The apparatus as claimed in claim 1, wherein the array of influencing elements is designed as a mirror array with mirror elements.

9. The apparatus as claimed in claim 8, wherein the mirror array is embodied as a MEMS mirror array.

10. The apparatus as claimed in claim 8, wherein a perforated mask is arranged between the mirror array and the object.

11. The apparatus as claimed in claim 1, wherein the array of influencing elements can be controlled in such a way that partial beams of the laser radiation impinge in a fashion offset from one another in time on the prescribable locations - to which radiation is to be applied - of the object, or on locations directly adjacent thereto.

12. The apparatus as claimed in claim 1, wherein the apparatus comprises scanning means that permit the object to be scanned with reference to the apparatus, or permit the apparatus to be scanned with reference to the object.

13. The apparatus as claimed in claim 1, wherein the apparatus comprises scanning means that permit the array of lens elements to be scanned with reference to the object and/or to the array of influencing elements.

14. The apparatus as claimed in claim 13, wherein, in a plane (X, Y) perpendicular to the propagation direction (Z), the array of lens elements is tilted slightly to a scanning direction (X) in which it can be displaced, this scanning direction (X) lying in a plane (X, Y) perpendicular to the propagation direction (Z).

15. An apparatus for applying laser radiation to an object, comprising:

- a laser light source for generating laser radiation;

- a two-dimensional array of influencing elements that can deflect and/or pass the laser radiation issuing from the laser light source in such a way that laser radiation is applied to prescribable locations on the object; and

- a two-dimensional array of lens elements that can focus the laser radiation or portions of the laser radiation onto the surface - to which radiation is to be applied - of the object;

- wherein the lens elements are designed as mutually crossed cylindrical lens elements or elements similar to cylindrical lenses.

16. The apparatus as claimed in claim 15, wherein a homogenization unit for homogenizing the laser radiation is arranged between the laser light source and the array of lens elements.

17. The apparatus as claimed in claim 15, wherein the array of influencing elements is designed as a modulator array with modulator elements.

18. The apparatus as claimed in claim 17, wherein the modulator elements are designed as electrooptic modulators or acoustooptic modulators.

19. The apparatus as claimed in claim 15, wherein the array of influencing elements is designed as a mirror array with mirror elements.

20. The apparatus as claimed in claim 19, wherein the mirror array is embodied as a MEMS mirror array.

21. The apparatus as claimed in claim 19, wherein a perforated mask is arranged between the mirror array and the object.

22. The apparatus as claimed in claim 15, wherein the array of influencing elements can be controlled in such a way that partial beams of the laser radiation impinge in a fashion offset from one another in time on the prescribable locations - to which radiation is to be applied - of the object, or on locations directly adjacent thereto.

23. The apparatus as claimed in claim 19, wherein the apparatus comprises two mirror arrays with mirror elements that are arranged in such a way that it is possible to generate partial beams of the laser radiation that impinge asymmetrically in relation to the normal to the surface - to which radiation is to be applied - of the object.

24. The apparatus as claimed in claim 15, wherein the apparatus comprises scanning means that permit the object to be scanned with reference to the apparatus, or permit the apparatus to be scanned with reference to the object.

25. The apparatus as claimed in claim 15, wherein the apparatus comprises scanning means that permit the array of lens elements to be scanned with reference to the object and/or to the array of influencing elements.

26. The apparatus as claimed in claim 25, wherein, in a plane (X, Y) perpendicular to the propagation direction (Z), the array of lens elements is tilted slightly to a scanning direction (X) in which it can be displaced, this scanning direction (X) lying in a plane (X, Y) perpendicular to the propagation direction (Z).

27. An apparatus for applying laser radiation to an object, comprising:

- a laser light source for generating laser radiation;

- a two-dimensional array of influencing elements that can deflect and/or pass the laser radiation issuing from the laser light source in such a way that laser radiation is applied to prescribable locations on the object; and

- a two-dimensional array of lens elements that can focus the laser radiation or portions of the laser radiation onto the surface - to which radiation is to be applied - of the object;

wherein the array of influencing elements can be controlled in such a way that partial beams of the laser radiation impinge in a fashion offset from one another in time on the prescribable locations - to which radiation is to be applied - of the object, or on locations directly adjacent thereto.

28. The apparatus as claimed in claim 27, wherein the desired laser power can be introduced into a prescribable area on the surface - to which radiation is to be applied - of the object by spatial and/or temporal summation.

29. The apparatus as claimed in claim 27, wherein the apparatus comprises two mirror arrays with mirror elements that are arranged in such a way that it is possible to generate partial beams of the laser radiation that impinge asymmetrically in relation to the normal to the surface - to which radiation is to be applied - of the object.

30. The apparatus as claimed in claim 27, wherein the apparatus comprises scanning means that permit the object to be scanned with reference to the apparatus, or permit the apparatus to be scanned with reference to the object.

31. The apparatus as claimed in claim 27, wherein the apparatus comprises scanning means that permit the array of lens elements to be scanned with reference to the object and/or to the array of influencing elements.

32. The apparatus as claimed in claim 31, wherein, in a plane (X, Y) perpendicular to the propagation direction (Z), the array of lens elements is tilted slightly to a scanning direction (X) in which it can be displaced, this scanning direction (X) lying in a plane (X, Y) perpendicular to the propagation direction (Z).

33. A processing apparatus for processing an object, comprising an apparatus as claimed in claim 1.

34. A processing apparatus for processing an object, comprising an apparatus as claimed in claim 15.

35. A processing apparatus for processing an object, comprising an apparatus as claimed in claim 27.

36. A printing apparatus for printing image information, comprising an apparatus as claimed in claim 1.

37. A printing apparatus for printing image information, comprising an apparatus as claimed in claim 15.

38. A printing apparatus for printing image information, comprising an apparatus as claimed in claim 27.